

Aquatic Life Use Impairment Study for the **Occoquan Reservoir**

Technical Advisory Committee Meeting
August 30, 2006



Meeting Agenda

- **Introductions & Background**

Bryant Thomas, *VA DEQ*

- **Overview of the Reservoir Model**

Adil Godrej, *Occoquan Watershed Monitoring Laboratory*

- **Direction for the Aquatic Life Use Impairment Study**

Jutta Schneider, *VA DEQ*

- **Overview of the Nutrient Criteria for Lakes/Reservoirs**

Jean Gregory, *VA DEQ*

Getting Started

- **Monitor and assess water quality for 305(b) Report.**
- **Place any waters not meeting Water Quality Standards on 303(d) List.**
- **Develop TMDL for each listed water.**



Water Quality Standards

- **Waters are listed as impaired based on Water Quality Standards (WQS).**
- **WQS:**
 - **Regulations based on federal and state law.**
 - **Set numeric and narrative limits on pollutants.**
 - **Consist of designated use(s) and water quality criteria to protect the designated uses.**

Designated Uses

- **Recreational**
- **Aquatic Life**
- **Public Water Supply**
- **Wildlife**
- **Fish Consumption**
- **Shellfish** (not applicable)



Aquatic Life Designated Use

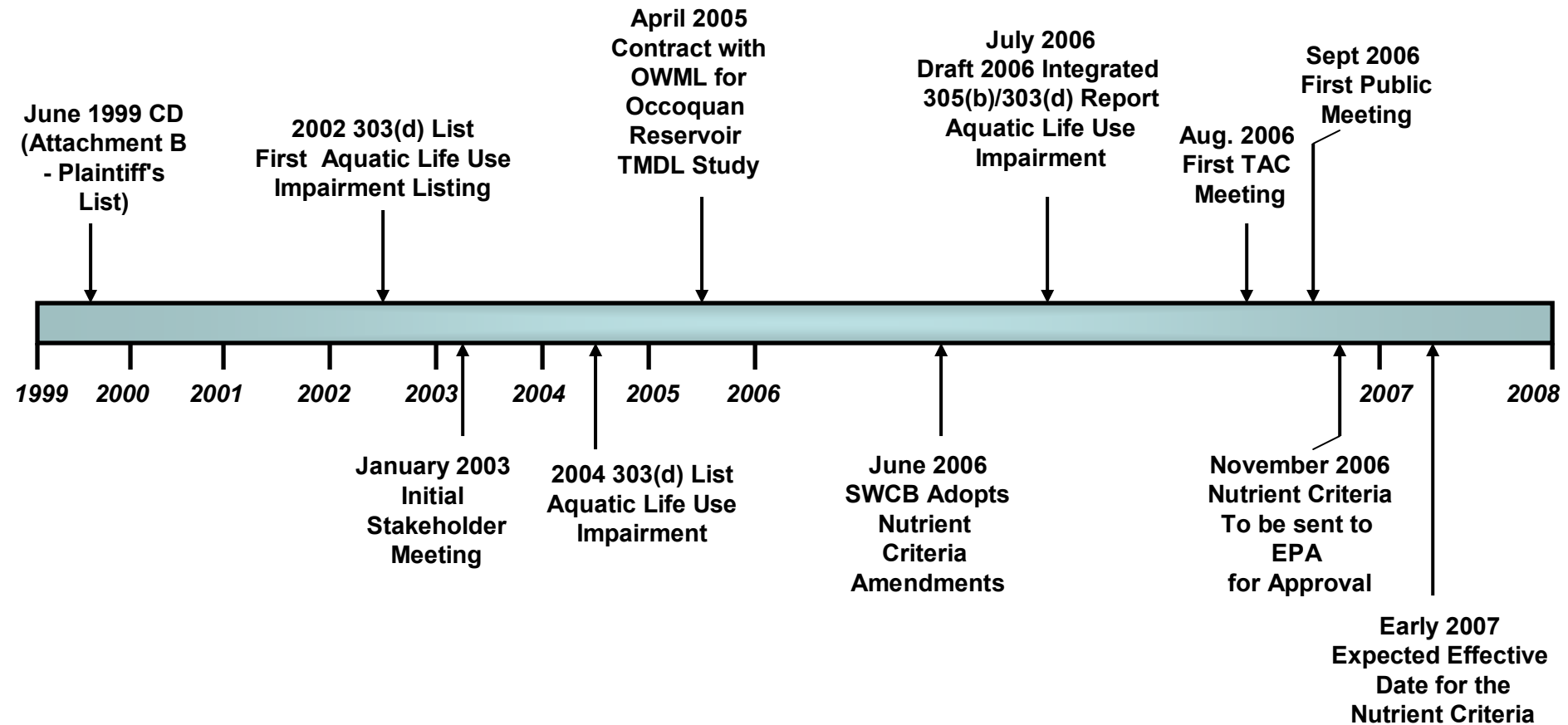
- Intended to protect the “propagation and growth of a balanced, indigenous population of aquatic life, including game fish, which might reasonably be expected to inhabit them.”
- To determine if the aquatic life use is being met, waters are assessed using various water quality data measures and biological indicators.
- Monitoring for appropriate levels of dissolved oxygen (DO) in water is one way of assessing the aquatic life use.
- The Virginia criterion for minimum DO in Class III nontidal waters is 4.0 mg/L



Occoquan Reservoir 303(d) Listing

- ❑ It was first identified in Attachment B (e.g. Plaintiff's List) of the June 1999 Consent Decree (with no specific pollutant listed). The listing was based on the trophic assessment of the reservoir.
- ❑ The reservoir was first included on the 303(d) list in 2002. The aquatic life use impairment is due to low dissolved oxygen.
- ❑ Because of the 2002 listing, reservoir is subject to the consent decree schedule.
- ❑ It remains on the 303(d) list due to low DO with observed effects noted for total phosphorus based on exceedances of the assessment screening level (50 ug/L).
- ❑ TMDL/regulatory action is required by 2010 to meet the Consent Decree

Occoquan Reservoir Aquatic Life Use Impairment Project Milestones



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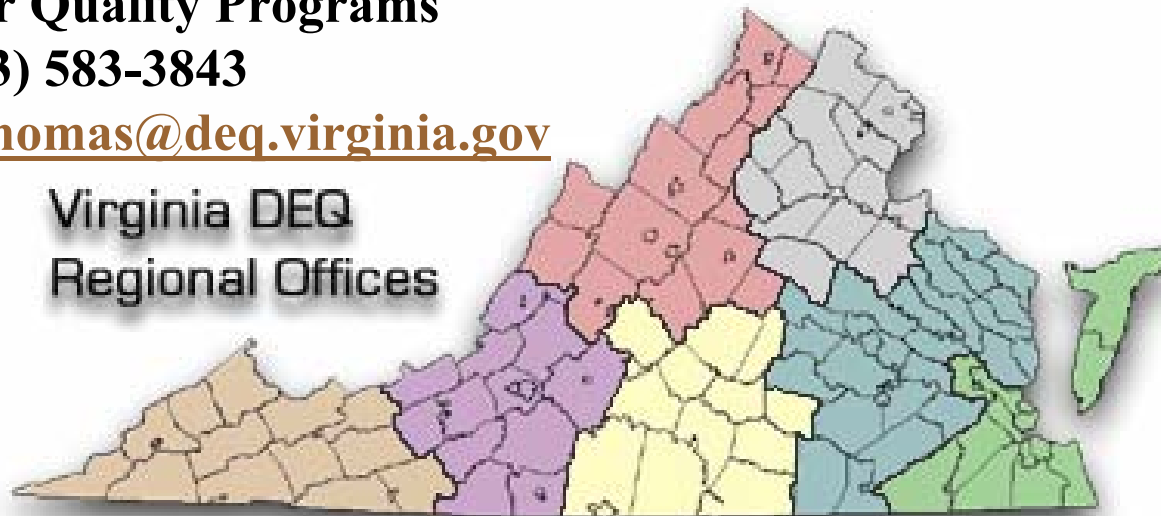
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Questions ?

What is a TMDL?

Total Maximum Daily Load (TMDL) is defined as the amount of a pollutant a stream can receive and still meet WQS. It is a pollution budget:

$$\text{TMDL} = \text{Sum of WLA} + \text{Sum of LA} + \text{MOS}$$

Where:

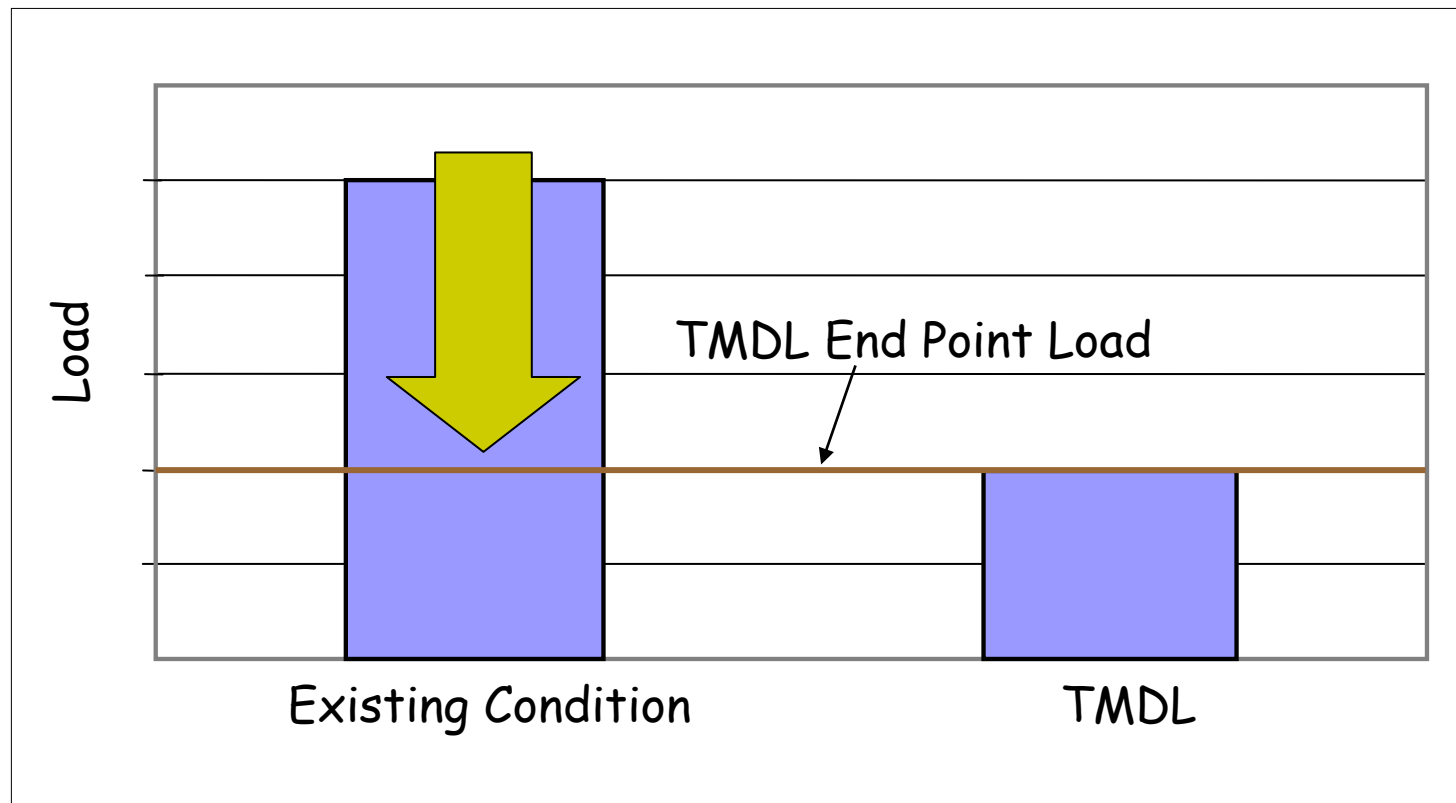
TMDL = Total Maximum Daily Load

WLA = Waste Load Allocation (point sources)

LA = Load Allocation (nonpoint sources)

MOS = Margin of Safety

An Example TMDL



Reducing pollutant load to the TMDL end point load is expected to restore water quality.

Required Elements of a TMDL

A TMDL must:

- **Be developed to meet Water Quality Standards.**
- **Be developed for critical stream conditions.**
- **Consider seasonal variations.**
- **Consider impacts of background contributions.**
- **Include wasteload and load allocations (WLA, LA).**
- **Include a margin of safety (MOS).**
- **Be subject to public participation.**
- **Provide reasonable assurance of implementation.**



Role of Technical Advisory Committee in TMDL Development

- **TACs provide technical input and guidance to the TMDL process.**
- **Requested to:**
 - **Review data, methods, processes.**
 - **Advise of technical issues.**
 - **Assist with public outreach process.**